

Claims:

1. A process for the hydroalkylation of an aromatic hydrocarbon comprising the step of contacting the aromatic hydrocarbon with hydrogen in the presence of a dual-functional catalyst comprising a first metal having hydrogenation activity and a crystalline inorganic oxide material having a X-ray diffraction pattern including d-spacing maxima at 12.4 ± 0.25 , 6.9 ± 0.15 , 3.57 ± 0.07 and 3.42 ± 0.07 Angstrom.
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2. The process of claim 1 wherein the crystalline inorganic oxide material is selected from MCM-22, PSH-3, SSZ-25, MCM-36, MCM-49 and MCM-56.
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3. The process of claim 1 wherein the aromatic hydrocarbon is benzene.
4. The process of claim 1 wherein the first metal is selected from palladium, ruthenium, nickel and cobalt.
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5. The process of claim 1 wherein the catalyst also contains a second metal, different from the first metal, and selected from zinc, tin, nickel and cobalt.
6. The process of claim 1 wherein the contacting step is conducted at a temperature of about 50 to 350°C, a pressure of about 100 to 7000 kPa, a benzene to hydrogen molar ratio of about 0.01 to 100 and a WHSV of about 0.01 to 100.
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7. A catalyst suitable for the hydroalkylation of an aromatic hydrocarbon comprising
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 - (a) a first metal having hydrogenation activity and selected from palladium, ruthenium, nickel and cobalt;
 - (b) a second metal, different from the first metal, and selected from zinc, tin, nickel and cobalt; and
 - (c) a crystalline inorganic oxide material having a X-ray diffraction pattern including the following d-spacing maxima 12.4 ± 0.25 , 6.9 ± 0.15 , 3.57 ± 0.07 and 3.42 ± 0.07 .
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8. The catalyst of claim 7 wherein the crystalline inorganic oxide material is selected from MCM-22, PSH-3, SSZ-25, MCM-36, MCM-49 and MCM-56.
9. The catalyst of claim 7 wherein the crystalline inorganic oxide material is MCM-22.
10. A catalyst suitable for the hydroalkylation of an aromatic hydrocarbon comprising
(a) MCM-22 zeolite;
(b) ruthenium or palladium; and
(c) tin or zinc.